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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,105	02/11/2004	Toshiyuki Sudo	1232-5281	2823

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EXAMINER

CHANG, AUDREY Y

ART UNIT PAPER NUMBER

2872

DATE MAILED: 05/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/776,105

Applicant(s)

SUDO ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on March 7, and March 23, 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-12 is/are pending in the application.
- 4a) Of the above claim(s) 7, 8 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4-6 and 9-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Remark

- This Office Action is in response to applicant's amendment filed on March 7 and March 23, 2006, which have been entered into the file.
- By this amendment, the applicant has amended claims 1, 4-6, has canceled claims 2-3 and has newly submitted claims 9-12.
- **Claims 7 and 8 are withdrawn** from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on October 12, 2005.
- **The newly submitted claim 12 is drawn to non-elected species** which is therefore **withdrawn** from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species.
- Claims 1, 4-6, and 9-11 remain pending in this application.
- The rejections to claims 1-6 under 35 USC 112, first paragraph, set forth in the previous Office Action still holds and the reasons for rejection are set forth in paragraphs below.

Response to Amendment

1. The amendment filed **March 7 and March 23, 2006** are objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: **claim 1 has been amended** to include the feature "each state-selective region selectively transmitting an incident light according to a state of the incident light". The specification fails to teach that the stereoscopic image display is capable of being established by having each state-selective region selectively transmitting an incident light according to **a state** of the incident light. In fact the state-selective regions have to be arranged so that regions are **alternatively** transmitting

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one particular state and its orthogonal state of the incident light in order to allow right eye image light to be transmitted to right eye and left eye image light to be transmitted to left eye.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 1, 4-6 and 9-11 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The reasons for rejection based on the newly added matters are set forth in the paragraph above.

4. **Claims 1, 4-6 and 9-11 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification and the claims **fail** to teach how could the stereoscopic display can be established by simply having a plurality of state-selective regions wherein **each** state-selectively transmitting an incident light according to **a state of the incident light**. This statement means the state-selective regions can only transmit incident light of one state.

Firstly, the claims fail to identify what is this or are theses states of the incident light and **where** do these states come from for the state-selective regions capable to select. **The applicant is respectfully**

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noted that the incident light has been first coded to have certain states before the selection can ever be performed. The claims fail to disclose such critical element to achieve such. For instance, if the state is referred to polarization, then the image light has to be first polarized by using **polarizers**.

Secondly, in order for the left eye image light to be directed to left eye viewing locations and the right eye image light to be directed to the right eye viewing locations, respectively, the left eye image light and the right eye image light have to be coded to have **orthogonal states** with respect to each other. For instance the left eye image light is coded to be S-polarized and right eye image light is coded to be P-polarized.

Thirdly, the horizontal separating member including plurality of partial separating regions such that each partial separating region having a plurality of state-selective regions wherein the state-selective regions must **first** have state selectivity *according* to the coding of the image light, (i.e. polarization or color etc.), such that each region is transmitting one particular state of the left or right image light and blocking the other state of the left or right image light. The adjacent regions are arranged to transmit different state of the image light. For instance, the first region transmits S-polarized light and block the P-polarized light and the second region has to transmit P-polarized light and block the S-polarized light so that the left eye and right eye image light can be separated via different regions and be directed to left eye and right eye viewing regions respectively.

With regard to claims 5, and newly added claims 10 and 11, the specification and the claims fail to teach how could the stereoscopic image be possible to displayed by simply having the particularly claimed arrangement of the state-selective regions or having the “different parallax images” as claimed.

At this juncture, the claims are not enabling for the stereoscopic image display. In particularly, the critical criterion for the left eye image and right eye image be separated from each other and be selectively directed to different viewing regions according to left eye and right eye positions is NOT established and NOT enabled by the disclosure and the claims.

Claim Objections

5. **Claims 1, 4-6 and 9-11 are objected to because of the following informalities:**

(1). **Claim 1 has been amended** to include the phrase “for displaying different parallax images on a viewing region” that is confusing and indefinite since it is not clear what images are considered to be these different parallax images? Does this phrase means left eye image and right eye images or does this phrase means a plurality of left eye images that are viewed at different viewing locations and a plurality of right eye images that are viewed at different viewing locations? The scopes of the claims are unclear.

(2). The amended phrase “a vertical separating member projecting light from predetermined pixel ... in the vertical direction” recited in claim 1 is confusing and indefinite since it is not clear what does it mean by “vertical direction”. The vertical position of the image light is determined by the vertical position of the pixel not by the separating member. It is not clear does this phrase mean the vertical separating member being a cylindrical lens elongated in the horizontal direction that converges light in the vertical direction or not?

(3). The phrase “the projection magnification of the vertical separating member in the vertical direction” recited in claim 4 is confusing and indefinite since the magnification power is really a result of the vertical separating member and the **geometric** arrangement of the member with respect to the image pixels. The phrase is better versed as “the vertical separating member is arranged to provide a magnification power greater than 1 for the image displayed on the display device to the horizontal separating member”.

(5). The amended phrase “in a case where first and second...” recited in claim 5 is confusing and indefinite since it is not clear if this case is part of the definite scopes and limitations of the claims or not?

(6). The newly added claims 10-11 fail to teach what are these different parallax images in order for the stereoscopic image to be displayed?

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Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 4-6, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishima et al (PN. 5,875,055) in view of the patent issued to Nose et al (PN. 5,991,074)

Claim 1 has been significantly amended that necessitate the new grounds of rejection.

Claim 1 and its dependent claims are rejected under 35 USC 112, first paragraph, with respect to new matters rejection and not enabling rejection, (please see the reasons stated above); they can therefore only be examined in the broadest interpretation.

Morishima et al teaches a *stereoscopic image display apparatus* that is comprised of a *liquid crystal display device* (1, Figures 1, 2A and 2B) serves as the *display device* for displaying a plurality of *parallax images* (R and L) by different pixels and a *polarization optical element* (2) having a plurality of partial separating regions which extended in horizontal direction (please see Figures 7C and 8C) having a plurality of *state-selective regions* (2-A and 2-B) that are arranged along horizontal wherein each of the state-selective regions selects to transmit one state of the incident image light and blocks the other state of the incident image light corresponding to the parallax images displayed on the display device. In particularly, Morishima et al teaches that the polarization state-selective regions 2-A transmits light of a *first* polarization state and the polarization state-selective regions 2-B transmits light a *second* polarization state wherein the first and second polarization states are different from each other. Morishima et al

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teaches that the polarization optical element (2) in combination with the "pi" cell (30) enable the parallax images be transmitted through the state-selective regions to different viewing region such as right eye and left eye of the observer, (please see columns 5-8) to enable stereoscopic image viewing.

This reference has met all the limitations of the claims. **Claim 1 has been amended** to include the phrase that the *different* parallax images are displayed on a viewing region and different parallax image are displayed at different position of the viewing region. Morishima et al teaches that the different parallax images, namely parallax images for the right eye and left eyes (R1, L2, R3, L4, R5, L6, R7, L8) are displayed on the display device and they are displayed at different positions, (namely left eye and right eye positions respectively) of a viewing region.

Claim 1 has been amended to include a vertical separating member for directing light from the pixel of the display to predetermined position of the horizontal separating member. Morishima et al teaches that the image light from the predetermined pixel is directed to the particular position of the horizontal separating member (i.e. 2A or 2B), but it does not teach explicitly to use a vertical separating member to achieve such. However, using *cylindrical* lens having vertical convergent function or using a mask having aperture slits is a common practice in the art to direct light image light from display to particular vertical position of horizontal separating member has horizontal extend. Such is explicitly taught by Nose et al, (please see Figure 11, 7 being cylindrical lens arranged in vertical direction with generatrix axis along horizontal direction and the 4 being the horizontal separating member or Figure 9, with 5 being the mask having aperture slits 6a). It would then have been obvious to one skilled in the art to apply the teachings of Nose et al to add additional cylindrical lens or mask pattern to direct the image light from the pixels to the predetermined horizontal separating member with more efficiency and to prevent cross talk between the image light from adjacent pixels.

With regard to claim 4, these references do not teach explicitly that the magnification power of the cylindrical lens is more than 1. However such modification would have been obvious matters of

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design choice to ensure the image light cover the entire regions of the state-selective regions of the horizontal separating member to ensure all the image light be properly transmitted.

With regard to claim 5, Morishima et al teaches in Figure 7C teaches that the state-selective regions for selecting different state of the image light (i.e. 2A and 2B) can be arranged so that they do not correspond to each other in the vertical direction.

With regard to claim 6, Morishima et al teaches that the polarization optical element having state-selective regions (2-A and 2-B) for selectively transmitting image light of different polarization state.

With regard to claim 9, the features concerning the cylindrical lens or the mask has been addressed in the paragraph above for claim 1, concerning the vertical separating member in term of Nose et al reference.

With regard to claims 10 and 11, Morishima et al teaches that the adjacent pixels display different parallax images, (i.e. L1 and R1 as shown in Figure 7A).

Response to Arguments

8. Applicant's arguments filed March 7 and March 23, 2006 have been fully considered but they are not persuasive. The newly amended claims and newly added claims have been fully considered and they are rejected for the reasons stated above.

Applicant's arguments are mainly based on newly amended features and they have been fully addressed in the paragraphs above.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing

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date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A. Chang, Ph.D.

Audrey Y. Chang, Ph.D.
Primary Examiner
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